

(No Model.)

L. R. FAUGHT.

SHAFT COUPLING.

No. 260,467.

Patented July 4, 1882.

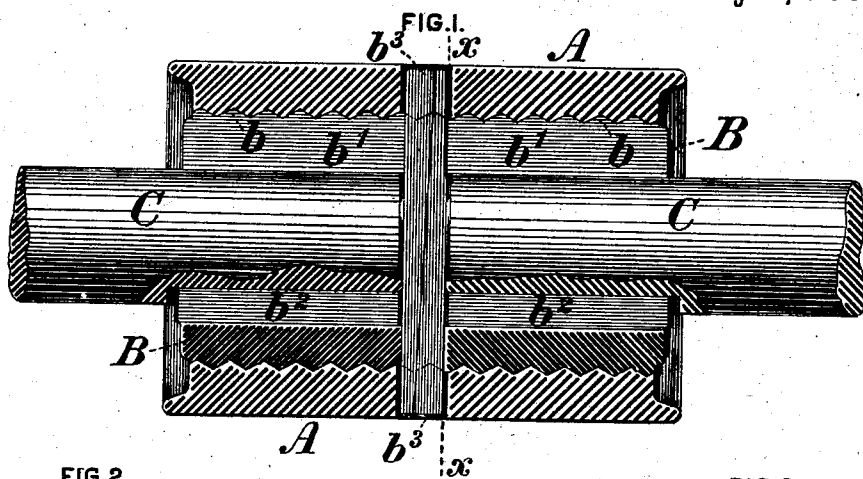


FIG. 2.

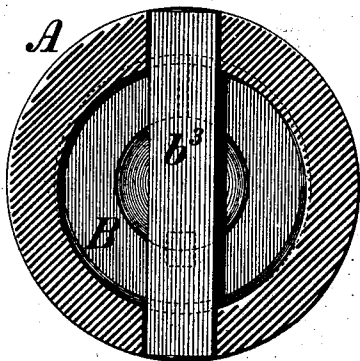


FIG. 5.

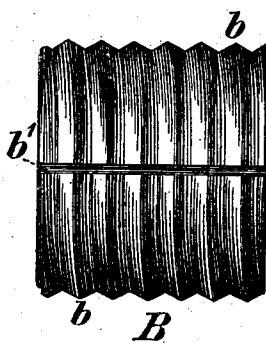


FIG. 3.

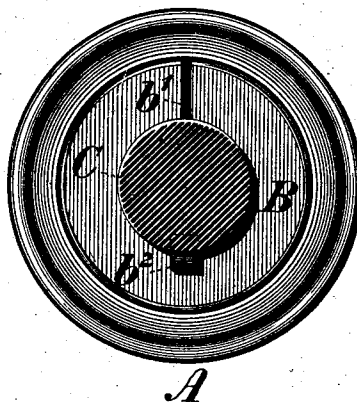
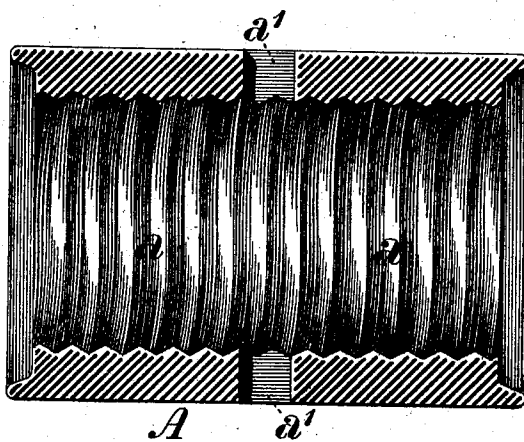


FIG. 4.



WITNESSES:

Geo. B. Collier.
Geo. T. Kelly.

INVENTOR

L. R. Faught,
by Collier & Bell
attys.

UNITED STATES PATENT OFFICE.

LUTHER R. FAUGHT, OF PHILADELPHIA, PENNSYLVANIA.

SHAFT-COUPLING.

SPECIFICATION forming part of Letters Patent No. 260,467, dated July 4, 1882.

Application filed March 31, 1882. (No model.)

To all whom it may concern:

Be it known that I, LUTHER R. FAUGHT, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Shaft-Couplings, of which improvements the following is a specification.

My invention relates to shaft-couplings of the class known as "clamp" or "compression" couplings, the distinguishing characteristic of which is the employment of sleeves or casings surrounding portions of the sections of shafting to be connected, and having such flexibility as to admit of being compressed thereon to a degree of tightness which will induce a frictional resistance superior to the strain of torsion transmitted from one of the connected sections to the other. To practically and usefully fulfill the requirements of service, a coupling of this description should possess, first, sufficient strength with the least practicable quantity of material; second, capability of firmly grasping the shafting and maintaining its position circumferentially thereon undisturbed under both intermittent and continuous strains; third, adaptability of its clamping members to be readily and quickly released whenever required; and, fourth, provision for separate and independent locking to each of the sections to be connected, in order that variation in the diameter thereof may neither impair the solidity of the connection nor injuriously affect the alignment of the shafting.

It is the object of my invention to provide a shaft-coupling which shall embody, as far as may be, the features above stated, as well as those of simplicity, durability, and reduced cost of construction relatively to prior structures, to which end my improvements consist in the combination of two flexible sleeves, each having a wedge or inclined-sided rib located helically upon its periphery, a rigid inclosing case or shell having an internal helical recess corresponding in section to the wedges of the sleeves, and means for compressing the sleeves upon the shaft-sections by increasing the bearing of their wedges upon the recess of the outer shell, all as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a longitudinal central section through a shaft-coupling embodying my invention; Fig. 2, a

transverse section through the same at the line *xx* of Fig. 1; Fig. 3, an end view of the same; Fig. 4, a longitudinal central section through the outer shell, and Fig. 5 a view in elevation of one of the flexible sleeves.

To carry out my invention I provide a cylindrical shell or case, A, having an inclined-sided recess, *a*, extending helically over its inner surface, the section of said recess being such as to admit of engagement with the wedges *b*, to be presently described. Two laterally flexible sleeves, B B, bored out centrally to a diameter admitting of their easy adjustment upon the sections C C of shafting which are to be connected, are fitted upon said sections adjacent to their ends, and are held firmly as against circumferential movement about the axes of the sections by keys *b*² entering keyways formed in the sections and sleeves.

Each of the sleeves B is longitudinally divided by a slot, *b*¹, extending from its central bore to its periphery on one side of its axis, the sleeves being thereby rendered capable of yielding to compressive force, and, under the influence thereof, firmly clamping themselves to the shaft-sections, and of springing outwardly to their normal form upon the release of such applied compression. A wedge, rib, or projection, *b*, the sides of which are inclined at an angle (preferably acute) to the axis of the sleeves B, is formed helically upon the periphery of each of them, said wedges, in order that the greatest practicable amount of frictional surface may be obtained, constituting screw-threads, which extend continuously over the periphery of the sleeves and engage with the correspondingly formed recess *a* of the outer shell, A.

Transverse slots *a*¹, formed centrally in the shell, and having their end walls perpendicular to the axis thereof, serve for the reception of a pair of locking-keys, *b*³, the length of which is about equal to the diameter of the shell, and which are straight on one side and tapered at equal angles upon the other, so that when placed within the slots *a*¹ with their tapered sides in contact, their opposite sides will remain parallel, irrespective of changes in their position longitudinally.

In the operation of the coupling its connection with the shafts is effected by inserting the

locking-keys b^3 in the slots a' of the shell A and screwing the sleeves B B into the shell with sufficient force to hold the keys in position. The shaft-keys b^2 are then inserted in the sleeves B B and the shafts C C slipped into the sleeves, the operation being facilitated, if necessary, by driving wedges into the slots of the sleeves, so as to spring them outwardly, and thus increase their central opening. Said expanding-wedges having been withdrawn after the insertion of the sections of shafting, the coupling is clamped thereto by turning one of the sections in a direction corresponding to the lead of the helical wedges, the other section being meanwhile held stationary so as to force the sleeves to a firm bearing against the locking-wedges. The longitudinal movement of the sleeves being thus arrested, while rotation of one section and the shell is continued, compression of the sleeves within the helical recess of the shell will be effected, with the result of closing them upon the shafts with a degree of tightness increasing proportionately to the power applied to the rotation of the shaft, and consequently increasing in degree in the operation of the shaft in service, so that the greater the torsional strain that may be exerted upon the shafting the more firmly will the sections be held in connection.

The coupling may also be locked to the shafts by placing the parts in position as before and then partially withdrawing the locking-keys, thereby admitting of the sleeves being screwed more closely together, so that when the locking-keys are driven back into position in the shell compression of the sleeves is effected by the tightening of their wedges in the recess of the sleeve, as before recited, to be caused by the rotation of one of the shaft-sections. The release of the coupling from the shafting is readily and quickly effected, whenever required, by drifting back one or both of the locking-keys, thereby relieving the sleeves from compression and permitting the free separation of the several members.

As before stated, the angles of the sides of the wedges are preferably acute, thus forming a comparatively flat thread, the helical form of which enables a powerful locking-surface to be provided over the entire periphery of the sleeve; and, further, the structural advantage obtains that the threaded sleeves and shells can be more economically manufactured than corresponding members having conical frictional surfaces, the accurate construction of which is more difficult and expensive than the formation of threaded cylindrical surfaces. The lead of the sleeve-wedges must be in such

direction as will correspond with the direction of rotation of the shafting to which they are to be applied, as otherwise the application of torsional strain in the operation of the shaft would effect the release of the sleeves from their induced compression upon the shaft-sections.

My improvements provide a coupling which is extremely simple in construction and of ready application. It may be made of strength equal to the most approved compression-couplings heretofore employed with a smaller quantity of metal and at a reduced cost of manufacture, and, inasmuch as its clamping action upon the shafting is increased proportionately with the strain transmitted through the same in operation, the sections thereof are connected with the amplest firmness that is practicable or necessary.

I am aware that clamping-sleeves made tapering or conical upon their external and internal surfaces, and either plain or threaded, have been heretofore known, and such, therefore, I disclaim, a leading characteristic of my invention being the avoidance of the use of conical elements.

I claim as my invention and desire to secure by Letters Patent—

1. The combination of a cylindrical sleeve having a central cylindrical bore and a slot or division extending therefrom to its periphery throughout its length, and a wedge or inclined-sided rib located helically upon the periphery of the sleeve, substantially as and for the purpose set forth.

2. A shaft-coupling in which are combined two flexible sleeves, each of uniformly cylindrical bore, and having a wedge or inclined-sided rib of uniform diameter throughout, located helically upon its periphery, a rigid inclosing case or shell having an internal helical recess corresponding to and engaging with the wedges of the two sleeves, and a device interposed between the sleeves for compressing them upon the shaft-sections by increasing the bearing of their wedges against the outer shell, substantially as set forth.

3. The combination, substantially as set forth, of two flexible sleeves having helical wedges upon their peripheries, a rigid shell recessed helically to engage the wedges of the sleeves, and a locking-key passing transversely through the outer shell and serving to transmit pressure in opposite directions to the inner ends of the sleeves.

L. R. FAUGHT.

Witnesses:

J. SNOWDEN BELL,
WALTER S. GIBSON.